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ABSTRACT

Items from two American instruments (Students' Evaluation of Educational Effectiveness, and the Endeavor instrument) designed to measure students' evaluations of teaching effectiveness were translated into Spanish and administered to a sample of Spanish university students. Most of the items were judged by the students to be appropriate; every item was chosen by at least a few as being a most important item; and all but the Workload/Difficulty items clearly differentiated between lecturers whom students indicated to be "good," "average", and "poor". A series of factor analyses clearly identified the factors which the instruments were designed to measure and which have been identified in previous research. Finally, a multitrait-multimethod analysis demonstrated that there was good agreement between factors from the two instruments which were hypothesized to measure the same components of effective teaching, and provided support for both the convergent and divergent validity of the ratings. The findings illustrate the feasibility of evaluating effective teaching in a Spanish university and the appropriateness of the two American instruments. (Author)

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Students' Evaluations of University Instructors: The Applicability of American instruments in a Spanish Setting

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Students' Evaluations of University Instructors:
The Applicability of American instruments in a Spanish Setting

ABSTRACT

Items from two American instruments designed to measure students' evaluations of teaching effectiveness were translated into Spanish and administered to a sample of Spanish university students. Most of the items were judged by the students to be appropriate, every item was chosen by at least a few as being a most important item, and all but the Workload/Difficulty items clearly differentiated between lecturers who students indicated to be "good", "average", and "poor". A series of factor analyses clearly identified the factors which the instruments were designed to measure and which have been identified in previous research. Finally, a multitrait-multimethod analysis demonstrated that there was good agreement between factors from the two instruments which were hypothesized to measure the same components of effective teaching, and provided support for both the convergent and divergent validity of the ratings. The findings illustrate the feasibilty of evaluating effective teaching in a Spanish university and the appropriateness of the two American instruments.

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Students' Evaluations of University Instructors: The Applicability of American instruments in a Spanish Setting

Students' evaluations of teaching effectiveness are commonly collected at North American universities and colleges, and their use is widely endorsed by students, faculty, and administrators (Centra, 1979; Leventhal, Perry, Abrami, Turcotte, & Kane, 1981). The purposes of these evaluations are variously to provide: 1) diagnostic feedback to faculty about the effectiveness of their teaching; 2) a measure of teaching effectiveness to be used in tenure/promotion decisions; 3) information for students to use in the selection of courses and instructors; and 4) an outcome or process-description measure for research on teaching. While the first purpose is nearly universal, the next two are not. At many universities systematic student input is required before faculty can even be considered for promotion, while at others the inclusion of students' evaluations is optional. Likewise, the results of students' evaluations are made public at some universities, while at others the results are considered to be strictly confidential. The fourth purpose of student ratings, their use in research on teaching, has not been systematically examined, and this is unfortunate.

The use of students' evaluations, especially for tenure/promotion decisions, has not been without opposition, and in the last decade this has been one of the most frequently studied areas in American educational research (for reviews see Aleamoni, 1981; Centra, 1979; Cohen, 1980, 1981; Costin, Greenough, & Menges, 1971; de Wolfe, 1974; Doyle, 1975; Feldman, 1976a, 1976b, 1977, 1978, 1979, 1982; Kulik & McKeachie, 1975; Marsh, 1980a, 1982b, in press; Murray, 1980; Overall & Marsh, 1982). In contrast to the wide use of students' evaluations in North America, they apparently have not been systematically collected in universities in other parts of the world, and there has been little attempt to test the applicability of instrument instruments developed in the United States, or the generalizability of findings from American settings in other countries. The purpose of this article is to describe two such American instruments, and to report upon an investigation of their applicability in a Spanish setting.

The Endeavor Instrument.

The Endeavor instrument measures seven components of effective teaching that have been demonstrated with the use of factor analysis in different settings (Frey, Leonard, & Beatty, 1975). The seven

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factors are Presentation Clarity, Workload, Personal Attention, Class Discussions, Organization-Planning, Grading, and Student Accomplishment. In validating the ratings obtained from this instrument, Frey has shown that the ratirgs on Endeavor are correlated with student learning (Frey, 1973; 1978; Frey, Leonard, and Beatty, 1975). In these studies, as well as in similar studies described below, student ratings are collected in large multisection courses (i.e., courses in which the large group of students is divided into smaller groups or sections and all instruction is delivered separately to each section). Each section of students in the same course is taught throughout by a different lecturer, but each is taught according to a similar course outline, has similar goals and objectives and, most importantly, is tested with the same standardized final examination at the end of the course (see Cohen, 1981; Marsh, 1982b; 1984; Marsh & Overall, 1980; for further discussion). Frey concluded that those sections of students that rate teaching to be most effective are also the sections that learn the most as measaured by performance on the final examination, thus supporting the validity of ratings on the Endeavor instrument.

Frey (1978) further argued that it is important to recognize the multidimensionality of evaluations of effective teaching. In an examination of the relationships between students' evaluations and a variety of other variables he demonstrated that the size, and even the direction of the correlations varies with the particular component of effective teaching that is considered. The failure to recognize this multidimensionality is an important weakness in much of the American research.

The SEEQ Instrument.

SEEQ (Students' Evaluations of Educational Effectiveness) and the research that led to its development have been recently summarized (Marsh, 1982b, 1983, 1984). Numerous factor analyses have identified the nine SEEQ factors in responses from different populations of students (e.g., Marsh, 1982b, 1982c, 1983), and also in lecturer self-evaluations of their own teaching effectiveness when they were asked to complete the same instrument as their students (Marsh, 1982c; Marsh & Hocevar, 1983). The nine SEEQ factors are Learning/Value, Instructor Enthusiasm, Organization/Clarity, Group Interaction, Individual Rapport, Breadth of Coverage, Examinations/Grading, Assignments/Readings, Workload/Difficulty.

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Marsh (1982c,1984), like Frey, argued that students' evaluations, like the effective teaching they are designed to reflect, should be multidimensional (e.g., a lecturer can be well organized and still lack enthusiasm). He supported this common-sense assertion with empirical results, and also demonstrated that the failure to recognize this multidimensionality has led to confusion and misinterpretations in student-evaluation research.

The reliability of responses to SEEQ, based upon differences among items designed to measure the same factor and differences among responses by students in the same course, is consistently high (Marsh, 1982b). In order to test the long-term stability of responses to SEEQ students from 100 classes were asked to reevaluate teaching effectiveness several years after their graduation from their university program, and their retrospective evaluations correlated 0.83 with those the same students had given at the end of each class (Overall & Marsh, 1980). Ratings on SEEQ have successfully been validated against the ratings of former students (Marsh, 1977), student learning as measured by objective examination in multisection courses (Marsh & Overall, 1980; Marsh, Fleiner, & Thomas, 1975), lecturer self-evaluations of their own teaching effectiveness (Marsh, Overall, & Kesler, 1979; Marsh, 1982c), and affective course consequences such as the application of course materials and plans to pursue the subject further (Marsh & Overall, 1980). None of a set of 16 "potential biases" (e.g., class size, expected grade, prior subject interest) could account for more than 5 per cent of the variance in SEEQ ratings (Marsh, 1980b; 1983), and many of the relationships were inconsistent with a simple bias explanation (e.g, harder, more difficult courses were evaluated more favorably). SEEQ ratings are primarily a function characteristics of the person who teaches a course, rather than of the particular course which he or she teaches (Marsh, 1981b, 1982a; Marsh & Overall, 1981). Finally, feedback from SEEQ, particularly when coupled with a candid discussion with an external consultant, led to improved ratings and better student learning (Overall & Marsh, 1979).

The Present Study.

The purposes of the present study are to test the applicability of the SEEQ and Endeavor instruments in a Spanish setting, and to replicate the results of a similar study conducted in an Australian setting where the factors which these surveys are designed to measure were empirically demonstrated and judged by Australian students to be

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appropriate and important (Marsh, 1981a).[1] In the present study, items from both the SEEQ and Endeavor instruments were translated into Spanish and administered to a sample of Spanish university students. Students were asked to select a representative "good", "average", and "poor" lecturer, to evaluate each with the same set of items, to indicate inappropriate items, and to select the most important items. These criteria, in addition to factor analyses of the ratings, were used to test the applicability of these American instruments in a Spanish setting.

METHOD

Sample and Procedures.

The evaluation instrument was administered to a total of 209 students who were currently enrolled in the Universidad De Navarra. The subjects were second, third and fourth-year university students, primarily between 19 and 21 years of age, who were in the process of completing degrees in education, architecture, or law. Students, who volunteered to participate, were read instructions about the study, after which they completed the instrument. Students were not asked to put their name on the instrument, and the confidentiality of their responses was guaranteed. There was no time limit for completing the instrument, but most students had completed it within about 30 minutes. All instruments were administered by the second author of the study.

Each evaluation instrument contained a cover page with instructions and demographic items, and requested that students select a "good", an "average" and a "poor" lecturer from their university experience. They were asked to try to limit their choices to lecturers who were in charge of an instructional sequence which lasted at least one term, and who taught courses that employed a lecture/discussion format. Students were then asked to fill out three separate questionnaires, one each for the good, average, and poor lecturers. The items, in paraphrased form, and the components of effective teaching which they are hypothesized to measure appear in Table 1. Students responded to each item on a nine-point response scale which varied from ("1-very poor, very low, or almost never" to "9-very good, very high, or almost always". An additional "not appropriate" response was provided for items that were not relevant to the course being evaluated (responses to items left blank were also counted as "not appropriate"). After completing the ratings for a

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given lecturer, students were asked to select up to five questions that they felt were "most important in describing either positive or negative aspects of the overall learning experience in this instructional sequence".

Statistical Analysis.

Each item was initially tested in terms of: (a) its ability to discriminate among the good, average, and poor instructors; (b) its appropriateness (i.e., the lack of "not appropriate" responses); and (c) its importance (i.e., the number of "most important" nominations). Items were categorized as representing ten dimensions on an a priori basis (support for these dimensions was found in the Australian study described by Marsh, 1981a) and a factor analysis of responses to all items was used to test the ability of the responses to differentiate among these hypothesized components of teaching effectiveness. Separate factor analyses were also performed on responses to items from the SEEQ and the Endeavor instruments, and factor scores derived from these analyses were used to determine the relationship between SEEQ and Endeavor factors.

All the statistical analyses were conducted with the commercially available SPSS statistical package (Hull & Nie, 1981). A separate one-way analysis of variance (ANOVA) was used to test the ability of each item to discriminate between "good", "average", and "poor" teachers, and differences between the three groups were then broken into linear and nonlinear components (Nie, et al., 1976, p. 425). The factor analyses were performed with iterated communality estimates, a Kaiser normalization, and an oblique rotation, also using the SPSS procedure.

For purposes of this study, blank and "not appropriate" responses were considered to be missing values. Each of the factor analyses was performed on correlation matrices constructed with "pair-wise deletion" for missing data. Factor scores derived from these analyses were used to represent the SEEQ and Endeavor factors, and consisted of weighted averages of responses to each item. Factor scores, based upon weighted averages of nonmissing values, were computed for each student so long as at least 75% of the responses were completed (for further discussion of how factor scores were derived and how missing data was handled, see Nie, et al., 1976, p. 496).

RESULTS

Evaluation of Individual Items.

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Preliminary inspection of the content of the SEEQ and Endeavor instruments revealed considerable overlap in the dimensions defined by each. Five SEEQ factors (Learning/Value, Group Interaction, Individual Rapport, Examinations/Grading, and Workload/Difficulty) appear to correspond closely to five Endeavor factors (Student Accomplishments, Class Discussion, Personal Attention, Grading, and Workload). A sixth SEEQ factor, Organization/Clarity, seems to have been divided into two factors for the Endeavor instrument (Presentation Clarity and Organization/Planning). Three SEEQ factors, Instructor Enthusiasm, Breadth of Coverage, and Assignments/Readings, do not appear to correspond to any of the Endeavor factors. On the basis of this preliminary inspection and results of the Australian study, 32 of the 34 SEEQ items (M1 - M32), the 21 Endeavor items (F1 - F21), and seven additional items (A1 - A7) were each classified into one of ten dimensions (see Table 1). Two other SEEQ, not specifically designed to measure a particular factor, are overall ratings of the instructor (M31) and the course (M30).

Insert Table 1 About Here

With the exception of Workload/Difficulty items, all items significantly ($p < .001$; see Table 1) differentiate among the "good", "average", and "poor" instructors in the predicted direction (i.e., "average" instructors were evaluated significantly lower than "good" instructors and significantly higher than "poor" instructors). Furthermore, nearly all of the differences among the three groups is explained by the linear component (i.e., the "variance explained" by the linear component is generally 30 to 60 times as large as the remaining variance which is explained by a nonlinear component). The differences are particularly large for the Instructor Enthusiasm, Presentation Clarity, and Learning/Value/Accomplishment dimensions. Workload/Difficulty items do not differentiate among the three groups as clearly. Nevertheless, "good" instructors tend to teach courses which are judged to be more difficult and require more work.

Students were specifically asked to indicate items that were inappropriate. Nine of the 62 items were judged to be inappropriate by more than 10% of the students (see Table 1). These included all six of the Assignments/Reading items, and items related to feedback from examinations, ability to get individual attention, and discussion of current developments. The number of inappropriate responses to the Assignments/Reading items suggests that outside assignments are not

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necessarily a part of courses in this Spanish University. Nevertheless, a majority of the items were judged to be appropriate by 95% or more of the students, and indicate that most of that the items are generally appropriate in this Spanish setting.

Students selected as many as five items that they felt were most important in describing positive or negative aspects of the overall learning experience. Each of the 62 items, even those seen as inappropriate by 10% or more of the students, received at least 8 nominations, and at least one item from each of the ten categories received 32 or more nominations (see Table 1). Four items received over 100 nominations: course challenging & stimulating (M1), lecturer enthusiastic about teaching (M5), teaching style held your interest (M8), and lecturer explanations were clear (M9). Items in the Learning/Value/Accomplishments, Instructor Enthusiasm, and Presentation Clarity categories were nominated most frequently. While some of the items and some of the dimensions were seen as more important, the nominations were spread widely over the entire set of items. This suggests that each of the dimensions measures a potentially important component of effective teaching.

Factor Analyses of The Combined Set of Items.

Based upon an a priori examination of the content of each item and the results of the Australian study (Marsh, 1981a), it was hypothesized that the 62 items would measure 10 components of teaching effectiveness. This hypothesis was empirically tested through the application of factor analysis. The results (see Table 2) demonstrate that each of the 10 factors is identified with remarkable clarity. With the exception of two items (F3 & F13), each item loads substantially on the factor it was designed to measure (target loadings) and less substantially on the other nine factors (nontarget loadings). A majority of the target loadings are greater than 0.55, and only three are less than 0.30. A majority of the nontarget loadings are less than 0.1, 95% are less than 0.2, and less than 1% are greater than 0.3.

Insert Table 2 About Here

The overall ratings of the instructor and course are not specifically designed to measure a particular dimension, but results from North American studies indicate that they load most highly on the Instructor Enthusiasm and Learning/Value dimensions respectively (Marsh, 1983). However, in the Australian study, the Overall Instructor Rating loaded most highly on the Presentation Clarity

dimension, though the Overall Course rating still loaded most substantially on the Learning/Value dimension. In the Spanish setting, both the Overall Course and Overall Instructor ratings load most highly on the Clarity dimension, and to a lesser extent on the Instructor Enthusiasm dimension.

Analyses of Responses to SEEQ and Endeavor Instruments.

Two separate factor analyses, analysis of responses to the 34 SEEQ items (see Table 3) and to the 21 Endeavor items (see Table 4), each clearly identify the factors which those instruments were designed to measure. For both analyses every target loading is at least 0.3, and a majority are greater than 0.5. Few nontarget loadings in either analysis are as large as 0.3, and most are less than 0.1. Factor scores used in the analysis described below were based upon these factor analyses.

Insert Tables 3 & 4 About Here

Correlations between the nine SEEQ and seven Endeavor factors (see results of Spanish study in Table 5) are presented in a form somewhat analogous to a multitrait-multimethod (MTMM) matrix, where the dimensions of teaching effectiveness are the multiple traits and the different instruments correspond to the multiple methods. Convergent validity refers to the correlations between SEEQ and Endeavor dimensions that are hypothesized to measure the same construct, while discriminant validity refers to the distinctiveness of the different dimensions and provides a test of the multidimensionality of the ratings. Typical MTMM analyses (see Marsh & Hocevar, 1983) would require that the same dimensions be assessed by the two instruments, but with minor modifications, the criteria developed by Campbell and Fiske (1959) can be applied to test for convergent and divergent validity in this data.

1. Convergent validities, correlations between SEEQ and Endeavor factors that are hypothesized to match (correlations in boxes in Table 5), should be substantial. Here the convergent validities vary between 0.71 and 0.93, and clearly satisfy this criterion.

2. One criterion of discriminant validity is that correlations between these matching factors should be higher than the correlations between nonmatching SEEQ and Endeavor factors in the same row or column of the rectangular submatrix. The application of this criterion requires that each of the seven convergent validities be compared with 14 other correlations. This test is met for 97 of the 98 comparisons, and clearly satisfies the second criterion.

3. Another criterion of discriminant validity is that correlations between these matching factors should be higher than correlations in the same row or column of the the triangular submatrices. The application of this criterion requires that each convergent validity is compared with eight correlations involving other SEEQ factors and six correlations involving other Endeavor factors. This test is met for all 98 of these comparisons, and

clearly satisfies the third criterion.

4. The pattern of correlations among SEEQ factors should be similar to the pattern of correlations among Endeavor factors (e.g., as the two SEEQ factors of Group Interaction and Individual Rapport are highly correlated, then so should be the two Endeavor factors of Class Discussions and Personal Attention). A visual inspection of the correlations in Table 5 demonstrates the similarity in the patterns of correlations.

Insert Table 5 About Here

For purposes of comparison, the corresponding correlations from the Australian study also appear in Table 5. Results described above for the present study are similar to those in the Australian data with one major exception; in the Australian study the correlation between the SEEQ Grading/Examination factor and the Endeavor Exam factor is not nearly so high as in the Spanish data. This exception is primarily due to the poor definition of the the SEEQ Grading/Examinations factor in the Australian study. Nevertheless, with this exception, there is a striking similarity between the results of the two studies.

Discussion and Implications

Items from two American instruments designed to measure students' evaluations of teaching effectiveness were translated into Spanish, and administered to a sample of Spanish university students. Most of the items were judged to be appropriate by the students, every item was chosen by at least a few as being most important, and all but the Workload/Difficulty items clearly differentiated between lecturers who students indicated to be "good", "average", and "poor". A series of factor analyses clearly identified the factors which the instruments were designed to measure and which have been identified in previous research. Finally, factors on the SEEQ and Endeavor instruments which were hypothesized to measure similar dimensions of effective teaching were found to be substantially correlated, while correlations between nonmatching factors were substantially smaller.

An important aspect of the present study was to determine if components of effective teaching identified in responses by American university students could also be identified in responses by Spanish students. The identification of distinct components suggests that students are differentiating among various components of teaching effectiveness and not just judging lecturers on a general good-bad dimension. Furthermore, earlier discussion proposes that students' evaluations cannot be adequately understood if this multidimensionality is ignored. The demonstration of a clearly

defined factor structure which corresponds to that found in the Australian study as well as in American settings, argues that Spanish students do differentiate among different components and that the specific components have a remarkable generality across quite different nationalities. Similarly, the MTMM analysis of responses to the SEEQ and Endeavor instruments shows that students differentiate among dimensions of effective teaching in a similar manner with both instruments.

Despite the strong evidence for the separation of the various dimensions of effective teaching, there still existed substantial correlations among some of the factors in both the Australian and Spanish studies. For the SEEQ factors, correlations among the Learning/Value, Instructor Enthusiasm, and Organization/Clarity factors were all high, as was the correlation between Group Interaction and Organization/Clarity factors. Among the Endeavor factors, Organization/Planning and Clarity were highly correlated, while correlations between Personal Attention and Group Discussion, Organization/Planning and Student Accomplishments, and Clarity and Student Accomplishments were also high. However, several points are relevant to interpreting these high correlations. First, these correlations were substantially lower than the reliabilities of the factors and even lower than the convergent validities observed in the MTMM analysis. Second, these correlations are based upon responses by individual students where halo/method effects are likely to have a relatively large impact. Students' evaluations are typically summarized by the average response by all the students in a given course and halo effects specific to particular students are likely to cancel out. Third, by specifically asking students to select "good", "average", and "poor" teachers, the ratings are likely to be stereotypic and biased against differentiation among dimensions (e.g., there would be a tendency to rate "bad" lecturers as poor on all items). Finally, some of the differentiation among components may be lost when students are asked to make retrospective ratings of former lecturers rather than to evaluate current lectureres.

These findings clearly demonstrate that teaching effectiveness can be measured in a Spanish setting, that evaluation instruments developed at American universities are appropriate in a Spanish setting, and that the same components that underlie evaluations of teaching effectiveness at American universities also apply in Spanish

settings. These same conclusions also resulted from the similar study which was conducted at an Australian university. Taken together, these two studies suggest the possibility that students' evaluations of teaching effectiveness and components such as those contained in the SEEQ and Endeavor instruments may be applicable to any university setting.

An important and provocative question raised by these findings is why students' evaluations are so widely employed at North American universities, but not at universities in other countries? The conclusions of this article and the Australian study suggest that teaching effectiveness can be measured by students' evaluations in different countries and that perhaps other findings from research conducted in North America may generalize as well, so this is not the reason. A more likely explanation is the political climate in American universities. While the study of students' evaluations has a long history in the United States, it was only in the late 1960's and 1970's that they became widely used. During this period there was a marked increase in student involvement in university policy making and also an increased emphasis on "accountability" in universities.

While the impetus for the increased use of students' evaluations of teaching effectiveness in North American universities may have been the political climate, subsequent research has shown them to be reliable, valid, relatively free from bias, and useful to students, lecturers, and administrators. Future research in the use of students' evaluations in different countries needs to take three directions. First, in order to test the generality of the conclusions in this article, the study described here should be replicated in other countries. Second, the validity of the students' evaluations must be tested against a wide variety of indicators of effective teaching in different countries as has been done in American research described earlier. Third, perhaps employing the instruments used in this study, there is a need to examine and document the problems inherent in the actual implementation of broad, institutionally-based programs of students' evaluations of teaching effectiveness in different countries.

Footnotes

1. This study, though similar to the Australian study, differs in several ways. First, Australian students were asked to select a "best" and a "worst" lecturer, while Spanish students selected a "good", "average", and "poor" lecturer. Second, Australian students made their responses on a five-point response scale rather than on a nine-point response scale. Third, though all the SEEQ and Endeavor items were used in each study, items "01", "06", and "07" were used only in the Spanish study. These changes were made in order to better define the various factors and are recommended for additional replications of the study in different settings. Researchers who are interested in replicating this study are encouraged to contact the first author.

REFERENCES

Aleamoni, L. M. (1981). Student ratings of instruction. In J. Millman (Ed.), Handbook of Teacher Evaluation. (pp. 110-145). Beverly Hills, CA: Sage.

Campbell, D. T., and Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 56, 81-105.

Centra, J. A. (1979). Determining Faculty Effectiveness. San Francisco: Jossey-Bass.

Cohen, P. A. (1980). Effectiveness of student-rating feedback for improving college instruction: a meta-analysis. Research in Higher Education, 13, 321-341.

Cohen, P. A. (1981). Student ratings of instruction and student achievement: A meta-analysis of multisection validity studies. Review of Educational Research, 51, 281-309.

Costin, F., Greenough, W. T., and Menges, R. J. (1971). Student ratings of college teaching: Reliability, validity and usefulness. Review of Educational Research, 41, 511-536.

de Wolf, W. A. (1974). Student ratings of instruction in post secondary institutions: A comprehensive annotated bibliography of research reported since 1968 (Vol. 1). Seattle: University of Washington Educational Assessment Center.

Doyle, K. O. (1975). Student evaluation of instruction. Lexington, MA: D. C. Heath.

Feldman, K. A. (1976a). Grades and college students' evaluations of their courses and teachers. Research in Higher Education, 4,69-

111.

Feldman, K. A. (1976b). The superior college teacher from the student's view. Research in Higher Education, 5,243-288.

Feldman, K. A. (1977). Consistency and variability among college students in rating their teachers and courses. Research in Higher Education, 6,223-274.

Feldman, K. A. (1978). Course characteristics and college students' ratings of their teachers and courses: What we known and what we don't. Research in Higher Education, 9,199-242.

Feldman, K. A. (1979). The significance of circumstances for college students' ratings of their teachers and courses. Research in Higher Education, 10,149-172.

Feldman, K. A. (1982). The seniority and instructional experience of college teachers as related to the evaluations they receive from their students. Stony Brook, NY: State University of New York.

Frey, P. W. (1973). Student ratings of teaching: Valdity of several rating factors. Science,182, 83-85.

Frey, P. W. (1978). A two dimensional analysis of student ratings of instruction. Research in Higher Education, 9, 69-91.

Frey, P. W., Leonard, D. W., and Beatty, W. W. (1975). Student ratings of instruction: Validation research. American Educational Research Journal, 12, 327-336.

Hull, C. H. and Nie, H. H. (1981). SPSS update 7-9. New York: McGraw-Hill.

Kulik, J. A., and McKeachie, W. J. (1975). The evaluation of teachers in higher education. In Kerlinger (Ed.), Review of Research in Education, (Vol. 3). Itasca, IL: Peacock.

Leventhal, L., Perry, R. P., Abrami, P. C., Turcotte, S. J. C., and Kane, B. (1981, April). Experimental investigation of tenure/promotion in American and Cancdian Universities. Paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles.

Marsh, H. W. (1977). The validity of students' evaluations: classroom evaluations of instructors independently nominated as best and worst teachers by graduating seniors. American Educational Research Journal, 14, 441-447.

Marsh, H. W. (1980a) Research on students' evaluations of teaching effectiveness. Instructional Evaluation, 4, 5-13.

Marsh, H. W. (1980b) The influence of student, course and instructor

characteristics on evaluations of university teaching. American Educational Research Journal, 17, 219-237.

Marsh, H. W. (1981a). Students' evaluations of tertiary instruction: Testing the applicability of American surveys in an Australian setting. Australian Journal of Education, 25, 177-192.

Marsh, H. W. (1981b). The use of path analysis to estimate teacher and course effects in student ratings of instructional effectiveness. Applied Psychological Measurement, 6, 47-60.

Marsh, H. W. (1982a). Factors affecting students' evaluations of the same course taught by the same instructor on different occasions. American Educational Research Journal, 19, 485-497.

Marsh, H. W. (1982b). SEEQ: A reliable, valid, and useful instrument for collecting students' evaluations of university teaching. British Journal of Educational Psychology, 52, 77-95.

Marsh, H. W. (1982c). Validity of students' evaluations of college teaching: A multitrait-multimethod analysis. Journal of Educational Psychology, 74, 264-279.

Marsh, H. W. (1983). Multidimensional ratings of teaching effectiveness by students from different academic settings and their relation to student/course/instructor characteristics. Journal of Educational Psychology, 75, 150-166.

Marsh, H. W. (in press). Students' evaluations of university teaching: Dimensionality, Reliability, Validity, Potential Biases, and Utility. Department of Education, University of Sydney.

Marsh, H. W. (in press). Students as evaluators of teaching. In T. Husen & T. N. Postlethwaite (Eds.), International Encyclopedia of Education: Research and Studies. Oxford: Pergamon Press.

Marsh, H. W., Fleiner, H., and Thomas, C. S.(1975). Validity and usefulness of student evaluations of instructional quality. Journal of Educational Psychology, 67, 833-839.

Marsh, H. W., and Hocevar, D. (1983). Confirmatory factor analysis of multitrait-multimethod matrices. Journal of Educational Measurement, 20, 231-248.

Marsh, H. W. and Overall, J. U. (1980). Validity of students' evaluations of teaching effectiveness: Cognitive and affective criteria. Journal of Educational Psychology, 72, 468-475.

Marsh, H. W. and Overall, J. U. (1981). The relative influence of course level, course type, and instructor on students' evaluations of college teaching. American Educational Research Journal, 18, 103-112.

Marsh, H. W., Overall, J. U., and Kesler, S. P. (1979). Validity of student evaluations of instructional effectiveness: A comparison of faculty self-evaluations and evaluations by their students. Journal of Educational Psychology, 71, 149-160.

Murray, H. G. (1980). Evaluating university teaching: A review of research. Toronto, Canada: Ontario Confederation of University Faculty Associations.

Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K. and Bent, D. H. (1975). Statistical package for the social sciences. New York: McGraw-Hill.

Overall, J. U., and Marsh, H. W. (1979). Midterm feedback from students: Its relationship to instructional improvement and students' cognitive and affective outcomes. Journal of Educational Psychology, 71, 856-865.

Overall, J. U., and Marsh, H. W. (1980). Students' evaluations of instruction: A longitudinal study of their stability. Journal of Educational Psychology, 72, 321-325.

Overall, J. U., and Marsh, H. W. (1982). Students' evaluations of teaching: An update. American Association for Higher Education Bulletin, 35(4) 9-13.

TABLE 1

Hypothesized Factors, Individual Items and Their Characteristics

	Discrimination Among Lecturers						
	Mean Responses For Lecturers Chosen as:			Variance Explained by:		Number of Not Appropriate	Number of Most Important
	Good	Average	Poor	Linear Component	Nonlinear Component	Responses	Nominations
M1	7.5	5.7	2.3	61.4	1.7	16	110
M2	7.5	6.1	3.6	39.3	1.1	16	89
M3	7.2	5.6	2.7	49.3	1.2	12	70
M4	7.5	6.4	4.5	33.1	0.9	7	23
F19	7.4	6.2	3.9	35.5	0.1	14	19
F20	7.4	5.9	3.4	46.7	1.0	17	51
F21	7.5	6.2	3.7	43.7	1.4	12	53
M5	8.1	6.6	4.2	43.7	8.9	5	163
M6	7.4	5.7	2.7	53.6	0.3	17	43
M7	7.2	5.2	3.0	39.7	0.0	22	72
M8	7.9	5.4	2.0	68.7	0.4	15	121
A1	8.2	6.4	3.9	48.4	0.5	9	62
M9	7.9	6.3	2.6	62.9	3.6	4	184
M10	7.9	6.1	2.4	67.2	2.7	12	92
M12	7.4	5.7	2.4	52.7	0.2	21	64
F1	7.6	6.1	2.7	61.0	2.6	43	50
F2	7.8	5.9	2.6	64.8	1.5	10	86
F3	7.7	6.4	3.8	45.4	1.2	12	58
M11	7.6	6.2	3.9	37.8	0.5	31	42
F13	8.2	6.8	4.1	45.1	1.5	12	87
F14	7.0	6.0	3.9	25.9	1.3	22	18
F15	7.2	5.8	3.6	39.0	0.6	18	30
A2	7.1	5.7	3.9	39.0	0.9	21	47
A3	7.4	5.9	3.4	43.9	0.9	17	44
M13	6.3	5.8	3.6	20.3	2.5	20	48
M14	6.6	5.4	3.3	30.8	0.6	47	28
M15	7.0	5.5	3.1	42.4	0.7	12	19
M16	6.6	5.2	3.4	29.0	0.1	31	8
F10	8.0	6.5	4.5	38.7	0.4	6	34
F11	6.9	5.6	3.5	30.1	0.6	21	35
F12	6.5	5.2	3.2	32.3	0.5	34	20
M17	7.4	6.4	4.1	31.0	1.5	7	86
M18	7.1	5.4	3.0	41.1	0.5	49	36
M19	6.4	4.8	2.6	38.6	0.3	36	52
M20	6.6	5.6	4.1	16.2	0.3	35	31
F7	7.2	5.7	3.6	33.1	0.3	36	42
F8	7.7	6.0	4.2	34.9	0.0	97	36
F9	6.8	5.0	3.2	35.0	0.0	22	64
M21	7.0	6.0	4.0	28.9	2.1	45	41
M22	7.0	6.0	3.8	31.8	2.0	33	15
M23	6.8	5.7	3.3	35.0	1.4	60	28
M24	6.9	5.9	3.9	29.7	1.3	115	22
M25	6.5	5.2	2.8	36.3	1.1	89	28
M26	6.9	5.8	3.6	31.9	1.1	38	76
M27	6.7	5.6	3.5	30.1	1.0	57	28
F16	7.0	5.8	3.7	31.6	0.7	54	87
F17	6.5	5.5	3.4	29.0	1.5	54	39
F18	6.7	5.5	3.4	33.3	1.1	54	20
M28	6.8	5.8	4.3	19.5	0.4	132	16
M29	6.8	5.7	3.6	33.9	1.2	99	14
A4	6.4	5.4	3.3	27.0	1.1	98	32
A5	7.3	5.8	4.5	28.0	0.0	121	17
A6	6.9	5.7	4.1	27.7	0.2	134	11
A7	7.4	6.1	4.3	30.2	0.2	125	12
M32	6.0	5.4	5.4	1.4	0.8	0	19
M33	5.9	5.5	5.5	0.5	0.2	3	19
M34	6.0	5.3	4.9	0.2	0.2	1	21
F4	7.4	6.3	5.6	11.0	0.2	2	33
F5	6.9	6.1	5.6	6.9	0.2	5	19
F6	6.1	5.8	5.5	1.4	0.0	7	33
M31	8.2	5.9	2.5	81.8	1.0	12	49
M30	8.1	5.9	2.3	79.6	1.8	13	28

NOTE: The Endeavor factors of Presentation Clarity and Planning/Objectives are represented by a single factor called Organization in SEEQ. The Overall Rating Items on SEEQ were not specifically designed to measure a particular factor.

TABLE 2

Factor Analyssi of Responses to All items (N=627 sets of ratings)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10
LEARNING/VALUE/ACCOMPLISHMENTS											
M1	Course challenging & stimulating	34	27	25	-03	06	03	14	10	08	07
M2	Learned something valuable	63	04	09	01	07	07	12	00	05	02
M3	Increase subject interest	47	22	06	06	05	09	15	03	08	-01
M4	Learned & understood subject matter	70	01	02	15	00	04	-04	10	08	-08
F19	Understood the advanced material	53	09	15	17	04	05	-04	03	07	-13
F20	Ability to analyze issues	58	10	03	07	05	00	15	05	04	10
F21	Increased knowledge & competence	66	03	04	01	-01	14	12	10	07	10
INSTRUCTOR ENTHUSIASM											
M5	Enthusiastic about teaching	05	56	08	-01	07	13	20	-04	05	01
M6	Dynamic and energetic	14	31	20	06	07	02	13	12	16	14
M7	Enhanced presentation with humor	07	49	03	04	18	09	08	05	03	07
M8	Teaching style held your interest	22	45	22	06	07	-01	00	10	15	05
A1	Seems to enjoy teaching	07	61	00	05	08	15	19	01	04	04
PRESENTATION CLARITY (ORGANIZATION)											
M9	Lecturer explanations clear	16	24	50	19	02	-02	04	02	06	-01
M10	Materials well explained & prepared	13	22	50	21	-02	00	11	04	08	04
M12	Lectures facilitated taking notes	02	25	35	27	04	05	01	12	09	-09
F1	Presentations clarified materials	15	19	46	15	-01	04	13	07	05	03
F2	Presented clearly & summarized	09	29	41	21	00	00	06	11	11	-02
F3	Made good use of examples	07	37	11	02	07	02	19	20	07	04
PLANNING/OBJECTIVES (ORGANIZATION)											
M11	Course objectives stated & pursued	14	-07	22	58	02	-02	09	08	04	01
F13	Presentations planned in advance	06	16	29	13	-11	12	30	09	-02	09
F14	Provided detailed course schedule	-02	-11	08	58	16	02	09	10	03	14
F15	Activities orderly scheduled	08	-04	25	44	-01	05	18	14	01	07
A2	Time distributed over topics	14	15	-08	57	03	06	-05	10	16	01
A3	Announced goals &/or criteria	08	25	-09	50	12	04	08	10	13	-01
GROUP INTERACTION/DISCUSSION											
M13	Encouraged class discussion	07	06	02	01	70	06	04	02	05	00
M14	Students shared knowledge/ideas	03	06	05	02	66	09	15	07	08	-01
M15	Encouraged questions & gave answers	01	11	11	16	51	12	15	07	08	00
M16	Encouraged expression of ideas	00	08	-01	09	69	16	09	05	06	-02
F10	Class discussion was welcome	04	04	21	03	44	23	15	08	03	00
F11	Students encouraged to participate	06	08	-03	10	73	09	06	03	08	03
F12	Encouraged students to express ideas	03	07	-02	15	66	14	13	06	02	-01
INDIVIDUAL RAPPORT/PERSONAL ATTENTION											
M17	Friendly towards individual students	00	06	18	-06	29	39	09	12	08	-06
M18	Welcomed students seeking help/advice	02	02	24	04	21	50	-01	17	09	00
M19	Interested in individual students	03	14	07	06	17	52	03	15	06	00
M20	Accessible to individual students	11	01	-04	07	-01	65	08	-04	11	05
F7	Listened & was willing to help	01	-03	23	-02	28	52	05	10	04	04
F8	Able to get personal attention	06	05	12	-01	09	60	09	11	06	04
F9	Concerned about student difficulties	-02	10	08	07	26	51	-01	13	10	04
BREADTH OF COVERAGE											
M21	Contrasted various implications	00	01	11	-02	12	01	67	03	04	01
M22	Gave background of ideas/concepts	05	15	07	08	10	-01	49	09	04	00
M23	Gave different points of view	-04	03	08	08	10	10	57	04	10	-03
M24	Discussed current developments	12	12	-14	09	-04	16	57	03	13	02
GRADING/EXAMINATIONS											
M25	Examination feedback valuable	03	-06	19	10	04	20	18	25	19	01
M26	Evaluation methods fair/appropriate	01	04	09	05	06	04	04	77	01	-02
M27	Tested course content as emphasized	10	07	-09	18	-01	13	18	38	15	-07
F16	Grading was fair and impartial	01	08	00	07	-02	11	03	78	03	01
F17	Grading reflected student performance	05	-02	03	09	03	01	03	82	06	-02
F18	Grading indicative of accomplishments	08	01	04	09	04	01	05	77	02	00
ASSIGNMENTS/READINGS											
M28	Readings/texts were valuable	07	-05	12	-11	07	-11	25	22	35	01
M29	They contributed to understanding	24	-01	04	-06	13	-02	14	16	48	09
A4	They encouraged further exploration	30	-02	08	-12	14	-02	13	07	43	01
A5	They were integrated into course	-05	05	03	08	04	03	03	00	84	00
A6	Appropriate in length & difficulty	08	08	-08	18	-03	20	-01	00	58	10
A7	They were related to class work	03	06	03	12	-01	14	11	01	60	05
WORKLOAD/DIFFICULTY											
M32	Course difficulty (easy-hard)	-02	07	-05	02	04	-07	-01	-06	02	83
M33	Course workload (light-heavy)	-06	04	-06	05	-05	02	-01	-05	-02	86
M34	Course pace (slow-fast)	09	10	00	10	-06	-04	04	07	-04	49
F4	Students had to work hard	03	01	12	-02	03	01	00	04	10	83
F5	Course required a lot of work	00	-08	10	00	04	02	02	03	09	83
F6	Course workload was heavy	-02	-04	00	-02	02	05	02	02	03	83
OVERALL RATING ITEMS											
M31	Overall Instructor Rating	17	30	40	12	05	09	08	13	10	08
M30	Overall Course Rating	12	29	40	17	02	08	07	10	12	05

Table 3

Factor Analysis of SEEQ Items (N=627 pairs of ratings)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LEARNING/VALUE										
M1	Course challenging & stimulating	33	42	05	06	08	09	08	13	03
M2	Learned something valuable	69	08	00	09	08	05	-05	10	03
M3	Increase subject interest	49	25	01	06	13	14	01	02	-02
M4	Learned & understood subject matter	68	-01	15	03	07	00	08	-04	-08
INSTRUCTOR ENTHUSIASM										
M5	Enthusiastic about teaching	06	45	05	13	14	18	-08	12	02
M6	Dynamic and energetic	11	47	02	14	03	12	27	00	10
M7	Enhanced presentation with humor	03	42	04	18	19	14	-01	-04	06
M8	Teaching style held your interest	23	54	14	09	05	07	07	00	02
ORGANIZATION/CLARITY										
M9	Lecturer explanations clear	19	36	48	01	02	12	-05	07	00
M10	Materials well explained & prepared	17	35	44	01	01	14	06	07	06
M11	Course objectives stated & pursued	27	-07	45	08	00	09	20	-09	09
M12	Lectures facilitated taking notes	07	30	40	08	08	10	12	-06	-09
GROUP INTERACTION/DISCUSSION										
M13	Encouraged class discussion	05	02	-01	79	03	-03	-06	09	00
M14	Students shared knowledge/ideas	01	02	-02	80	00	13	07	-01	00
M15	Encouraged questions & gave answers	04	05	14	59	11	14	06	00	02
M16	Encouraged expression of ideas	02	-01	-01	85	08	08	03	-06	-02
INDIVIDUAL RAPPORT										
M17	Friendly to individual students	-06	09	08	38	34	04	07	15	-05
M18	Welcomed students seeking advice	-04	10	15	28	48	-02	17	06	00
M19	Interested in individual students	-01	09	09	19	61	03	08	07	04
M20	Accessible to individual students	13	-01	-06	02	70	08	-02	-03	-01
BREADTH OF COVERAGE										
M21	Contrasted various implications	-05	05	04	08	-01	70	-01	16	02
M22	Gave background of ideas/concepts	08	09	09	12	00	48	05	13	01
M23	Gave different points of view	-02	-02	12	11	06	73	02	-04	-01
M24	Discussed current developments	19	04	-13	00	14	65	08	-07	01
GRADING/EXAMINATIONS										
M25	Examination feedback valuable	-01	01	21	04	27	16	31	14	03
M26	Evaluation methods fair/appropriate	01	01	23	12	11	04	54	04	-07
M27	Tested course content as emphasized	12	01	06	03	20	19	45	-05	-08
READING/ASSIGNMENTS										
M28	Readings/texts were valuable	12	06	-09	04	-06	12	38	44	14
M29	They contributed to understanding	32	-01	-02	12	10	12	21	34	06
WORKLOAD/DIFFICULTY										
M32	Course difficulty (easy-hard)	01	-04	02	04	-04	00	-07	05	89
M33	Course workload (light-heavy)	-07	-02	02	-07	08	00	-05	03	88
M34	Course pace (slow-fast)	08	18	-07	03	-09	02	23	24	47
OVERALL RATING ITEMS										
M31	Overall Instructor Rating	09	42	29	06	14	09	11	13	08
M30	Overall Course Rating	18	40	30	04	12	09	09	10	06

NOTE: The factor loadings in boxes, the target loadings, are for items designed to measure the factor.

TABLE 4

Factor Analysis of Endeavor Items (N=627 sets of ratings)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
PRESENTATION CLARITY								
F1	Presentations clarified materials	60	06	05	04	16	06	15
F2	Presented clearly & summarized	63	03	02	08	15	11	10
F3	Made good use of examples	50	08	13	11	-03	15	10
WORKLOAD/DIFFICULTY								
F4	Students had to work hard	11	86	03	-02	01	01	03
F5	Course required a lot of work	-03	87	00	02	04	03	03
F6	Course workload was heavy	-03	85	-02	01	00	-03	-01
INDIVIDUAL RAPPORT/PERSONAL ATTENTION								
F7	Listened & was willing to help	06	01	64	20	06	07	02
F8	Able to get personal attention	03	01	70	04	06	07	15
F9	Concerned about student difficulties	05	02	48	30	08	12	03
CLASS DISCUSSION								
F10	Class discussion was welcome	21	00	33	44	01	06	04
F11	Students encouraged to participate	01	04	07	81	06	01	06
F12	Encouraged students to express ideas	05	-01	10	78	05	06	05
ORGANIZATION/PLANNING								
F13	Presentations planned in advance	35	07	20	-08	30	04	11
F14	Provided detailed course schedule	-04	12	00	19	41	15	06
F15	Activities orderly scheduled	08	00	04	-01	81	04	03
GRADING								
F16	Grading was fair and impartial	05	01	14	-04	01	78	04
F17	Grading reflected student performance	02	-01	-02	03	04	91	02
F18	Grading indicative of accomplishments	03	01	-02	05	08	83	04
LEARNING/VALUE/ACCOMPLISHMENTS								
F19	Understood the advanced material	27	-12	-07	10	11	07	41
F20	Ability to analyze issues	02	05	09	06	06	01	79
F21	Increased knowledge & competence	02	06	05	00	00	08	83

NOTE: The factor loadings in boxes, the target loadings, are for items designed to measure the factor.

TABLE 5

MTMM Matrix of Correlations Among SEEQ and Endeavor Factors From Responses By Spanish Students (N=627 sets or ratings) and Australian Students (N=316 sets)

SEEQ Evaluation Factors		1	2	3	4	5	6	7	8	9
1 Group Interaction	Aust	(94)								
	Span	(94)								
2 Learning/Value	Aust	26	(92)							
	Span	39	(92)							
3 Workload/Difficulty	Aust	-05	06	(91)						
	Span	04	08	(79)						
4 Exams/Grading	Aust	33	46	20	(81)					
	Span	42	50	13	(85)					
5 Individual Rapport	Aust	54	31	-03	32	(93)				
	Span	68	43	-05	39	(90)				
6 Organization/ Clarity	Aust	24	52	-15	48	33	(93)			
	Span	39	50	02	46	43	(91)			
7 Enthusiasm	Aust	39	55	-04	52	47	60	(95)		
	Span	47	65	22	40	43	64	(92)		
8 Breadth of Coverage	Aust	42	39	-01	46	40	47	49	(88)	
	Span	62	55	12	52	55	45	57	(89)	
9 Assignments/ Readings	Aust	22	37	07	39	18	35	37	33	(84)
	Span	32	25	-05	26	29	18	24	36	(84)

		SEEQ Factors									Endeavor Factors						
Endeavor Factors		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
10 Class Discussion	Aust	88	29	-03	33	57	20	45	39	22	(85)						
	Span	93	37	03	38	69	38	43	59	29	(92)						
11 Student Accomplishments	Aust	33	80	-10	56	37	70	63	49	39	29	(85)					
	Span	46	86	11	52	51	55	66	60	31	44	(87)					
12 Workload	Aust	05	14	75	32	02	-02	06	05	20	05	03	(94)				
	Span	15	13	82	20	09	12	25	20	06	13	20	(91)				
13 Grading	Aust	28	39	-04	34	39	43	31	36	50	25	35	06	(90)			
	Span	46	48	01	80	49	57	41	52	28	42	50	13	(94)			
14 Personal Attention	Aust	63	40	-05	43	81	41	56	57	29	60	44	04	40	(90)		
	Span	75	37	08	44	81	40	48	56	32	72	46	18	45	(91)		
15 Presentation Clarity	Aust	23	47	-13	55	35	82	71	49	32	23	60	00	31	43	(92)	
	Span	47	69	08	51	48	79	79	63	30	41	71	14	51	51	(89)	
16 Organization/ Planning	Aust	26	58	06	51	35	68	59	56	39	21	60	16	41	43	67	(85)
	Span	48	59	18	60	48	71	57	59	24	46	58	28	60	45	67	(78)

NOTE: Coefficients in parentheses are coefficient alpha estimates of reliability, while those in boxes are the convergent validities.

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